

REMARKS

Claim 1 stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Hieda in view of Zurcher. This new Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 1 requires ". . . forming an insulation film and then an adhesion film on the plug and the barrier film, and *then* forming a hole in the insulation film and the adhesion film leading to the plug such that an upper surface of the plug and an adjacent part of the barrier film are exposed . . . wherein the adhesion film is removed before the lower electrode is left in the protuberant manner; forming a dielectric film that covers the protuberant lower electrode and at least part of the barrier film, and then forming a second conductive film that covers at least part of the dielectric film, said dielectric film being made of a ferroelectric or high-dielectric-constant substance; and patterning the dielectric film and the second conductive film simultaneously to thereby form a capacitor dielectric film and an upper electrode." For example, and without limitation, see Fig. 1 of the instant which illustrates that insulation film 6 and adhesion film 11 are formed *before* forming a hole therein.

The Office Action admits that Hieda fails to disclose or suggest the formation of the claimed adhesion film, let alone at the time required by claim 1 (e.g., pg. 4 of Office Action, first paragraph). Recognizing this flaw in Hieda, the Office Action cites Zurcher.

However, Zurcher also fails to disclose or suggest forming an insulation film and an adhesion film thereon *before* forming a hole therein. In particular, Zurcher teaches

that a Ti adhesion film may be formed just before forming barrier layer 208 (e.g., col. 6, lines 35-40; and Figs. 11-12). However, this means that Zurcher's non-illustrated Ti adhesion film would be formed *after* formation of the hole in insulator 206. In contrast, claim 1 requires that the adhesion film and insulation film be formed *before* the hole is formed in both the insulation film and the adhesion film.

Thus, it can be seen that both Hieda and Zurcher fail to disclose or suggest forming an adhesion film and insulation film *before* a hole is formed in both the insulation film and adhesion film as called for in claim 1. Accordingly, even if the two references were combined as alleged in the Office Action (which applicant believes would be incorrect in any event), the invention of claim 1 still would not be met.

Additionally, claim 1 requires that the adhesion film be "removed before the lower electrode is left in the protuberant manner." For example, it can be seen in Fig. 1 of the instant application that adhesion film 11 is removed (see Figs. 1B-1C) before the electrode 8 is left in a protuberant manner in Fig. 1D. In contrast, *Zurcher's Ti adhesion film is never removed.* Thus, Zurcher cannot possibly disclose or suggest removing the adhesion film before the lower electrode is left in the protuberant manner as required by claim 1. It is noted that Zurcher's leaving the adhesion film in place forever is problematic because potential oxidizing of the adhesion layer may undesirably increase contact resistance.

Since both cited references fail to disclose or suggest the claimed removal of the adhesion film before the lower electrode is left in the protuberant manner, even the

ONISHI

Appl. No. 09/834,923

November 5, 2003

alleged combination fails to meet the invention of claim 1. The Section 103(a) rejection is fundamentally flawed for this additional reason.

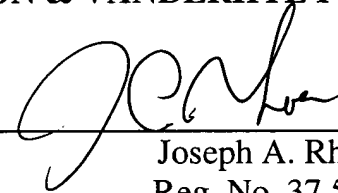
Claim 4 also requires forming an adhesion film and insulation film *before* a hole is formed in both the insulation film and adhesion film. Again, since both cited references fail to disclose or suggest this aspect of claim 4, even the alleged combination fails to meet the invention of claim 4.

For at least the foregoing reasons, it is respectfully requested that all rejections be withdrawn. All claims are in condition for allowance. If any minor matter remains to be withdrawn, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____



Joseph A. Rhoa
Reg. No. 37,515

JAR:caj
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100